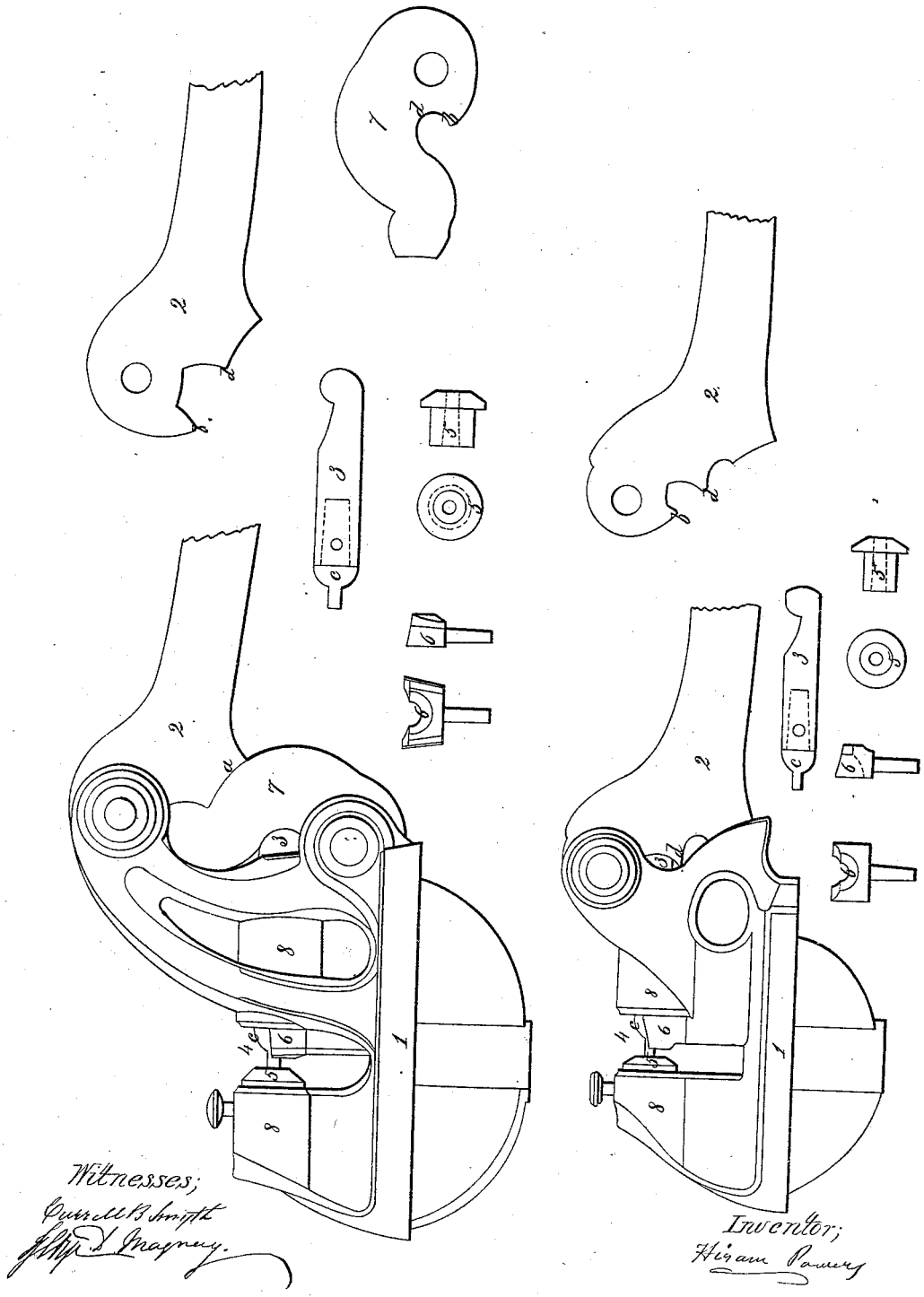
H. Powers,

Metal Punch,

No. 31,476. Patented Feb. 19, 1861.



Witnesses;
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UNITED STATES PATENT OFFICE.

HIRAM POWERS, OF FLORENCE, ITALY.

PUNCHING-MACHINE.

Specification of Letters Patent No. 31,476, dated February 19, 1861.

To all whom it may concern:

Be it known that I, HIRAM POWERS, a citizen of the United States, now residing in Florence, Italy, have invented certain new and useful Improvements in the Mode and Manner of Constructing Machines for Punching and Stamping Metals, &c.; and I hereby declare the following to be a clear and exact description of the same, reference being had to the accompanying drawings.

The nature of the invention consists in a simplification of the machinery. This is attained by means of a single engine (No. 1,) of cast iron or other metal, in which a lever (No. 2,) is so adjusted as to act, by means of a shoulder (*a*) and a cog (*b*), upon the shaft (3) of a punch (*c*) in a closely fitting orifice (8, 8) and through it upon the plate to be perforated, which plate is inserted in a chasm (No. 4) or transverse opening between the orifice and a corresponding socket or die (No. 5) immediately opposite, which occupies a continuation of the orifice across the chasm. The shaft is propelled and withdrawn by means of the shoulder (*a*) and cog (*b*) of the lever (No. 2) and the plate is thrown off from the retiring punch by coming in contact with an abutment (No. 6) at the end of the orifice (No. 8) occupied by the punch shaft (No. 3)—all of which may be better understood by reference to the accompanying drawings.

In operating the machine the lever (No. 2) is raised—the cog (*b*) engaging with the punch shaft (No. 3) draws it back. The plate &c. to be punched or stamped is then placed in the chasm (No. 4) between the socket or die (No. 5) and abutment (No. 6)—the lever is then brought down with force and the punch shaft (No. 3) is forced forward by the pressure of the shoulder (*a*) of the lever through the metal or material to be punched—the lever being raised the cog (*b*) engages with the notch in the punch shaft and draws it back as before, the abutment (No. 6) preventing the plate from following the punch as the latter is withdrawn.

By the introduction of a double or compound lever (Nos. 2 and 7) the power of the machine may be greatly increased; and for this purpose I have contrived an arrangement by which the shoulder (*a*) and cog (*b*) of the single projecting arm above indicated is made to act through a second or intermediate lever (No. 7) upon the shaft (No. 3,) as may be seen by the drawings alluded to. I propose also to apply the machinery to the work of both stamping and cutting metals and other substances, by the substitution of a stamp or cutting instrument for the punch on the shaft indicated above.

Among the advantages attained, are simplicity and durability and consequent saving of power and expense. This machine for example, may be taken to pieces and readjusted with another sized punch or instrument in half a minute. Then, the simplest machine now in use to cut quarter inch holes in quarter inch iron plates costs $40, whereas my single lever press will not cost over $8. The more powerful machines for punching boiler iron cost £60 while one of my compound presses of the same power, which is moreover much more convenient and of only one tenth the weight, can be afforded for as many dollars. These machines may be made horizontal or vertical.

What I claim as new and desire to secure by Letters Patent is—

The shoulder (*a*) and cog (*b*) of the lever acting in combination upon the notched shaft (No. 3) in which the punch, shaft or cutting instrument (*c*) is inserted, operating as hereinbefore specified and described, for punching stamping and cutting metals and other hard substances.

HIRAM POWERS.

Witnesses:

WM. B. KINNEY,

L. POWERS.